

Remarks

Further and favorable reconsideration is respectfully requested in view of the foregoing amendment and following remarks.

Thus, claim 1 has been amended to require that the modified cyclic aliphatic polyamine have an ethyleneamino (-NH-CH₂-CH₂-) moiety. Considering the fact that the modified cyclic aliphatic polyamine is obtained by the addition reaction of a cyclic aliphatic polyamine and an alkenyl compound, as recited in claim 1, the modified cyclic aliphatic polyamine will always have this ethyleneamino moiety. In support of this, please see the attached Rule 132 Declaration of Dr. Koyama, one of the present inventors. Accordingly, the amendment to claim 1 is properly supported by the specification, and does not raise the issue of new matter. As noted by MPEP 2163.07(a), if the claimed subject matter inherently has a certain property, amending the application to recite that property can be achieved without introducing new matter. As noted in the Rule 132 Declaration, "the modified cyclic aliphatic polyamine of the present invention **necessarily always** has an ethyleneamino (-NH-CH₂-CH₂-) moiety, because the reaction described in claim 1 is addition reaction between a cyclic aliphatic polyamine and an alkenyl compound." Accordingly, introducing this inherent property of the modified cyclic aliphatic polyamine into claim 1 does not constitute new matter.

The allowance of claims 8-11 and 27-33 is noted.

The patentability of the subject matter of claims 1-7 over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

Thus, the rejection of claims 1-7 under 35 U.S.C. §102(b) as being anticipated by Brytus is respectfully traversed.

As Applicants noted in their last response, whereas the modified cyclic aliphatic polyamine of the present invention inevitably has an ethyleneamino moiety (-NH-CH₂-CH₂-), Brytus discloses an adduct which is the reaction product of a monoepoxide and a diamine. Since the reaction product of Brytus is obtained by the reaction between an amino group of the diamine and an epoxy group of the monoepoxide, it inevitably has a hydroxyalkyl amino moiety (-NH-CH₂-CH(OH)-), **but**

it cannot have an ethyleneamino moiety (-NH-CH₂-CH₂-). This is not merely a difference of processes, but a difference of structures of the products derived from different processes.

The Examiner states that since Applicants have claimed a product by way of a product-by-process claim, the Examiner did not give any patentable weight to the process step.

However, as noted in MPEP 2113, the structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art. The process step in claim 1 is the addition reaction of a cyclic aliphatic polyamine and an alkenyl compound. The structure implied by this step, which has now been expressly incorporated into claim 1 as set forth above, is that the obtained modified cyclic aliphatic polyamine has an ethyleneamino (-NH-CH₂-CH₂-) moiety.

On page 2 of the Office Action, the Examiner refers to two structures shown in the Brytus reference. These two structures are for two of the diamines disclosed at column 2, lines 31-37 of the reference. These two diamines can be employed in the presently claimed invention, and are more specifically recited in claim 3 of the present application. However, whereas the present invention reacts these diamines with **an alkenyl compound**, Brytus reacts the diamines with **a monoepoxide compound**. The result of these respective reactions is to produce a modified cyclic aliphatic polyamine having an ethyleneamino (-NH-CH₂-CH₂-) moiety in accordance with the present invention, in contrast to the adduct of Brytus which has a hydroxyalkyl amino moiety (-NH-CH₂-CH(OH)-) but does not have an ethyleneamino moiety (-NH-CH₂-CH₂-).

As Applicants have also previously noted, the advantages of using a modified polyamine having no OH groups are that compared with the reaction products having the same molar ratio of modification, the viscosity of the reaction products having OH groups is usually higher than those having no OH groups. When used as an epoxy resin curing agent, the compounds having lower viscosity can provide an epoxy resin composition having excellent workability. Since the modified cyclic aliphatic polyamine of the present invention does not have OH groups, it has lower viscosity and is useful as an epoxy resin curing agent.

For these reasons, Applicants take the position that the rejection of claims 1-7 as being anticipated by the Brytus reference should be withdrawn.

The rejection of claims 1-7 under 35 U.S.C. §102(b) as being anticipated by Kadlecek et al. is respectfully traversed.

The Examiner takes the position that this reference discloses a cyclic aliphatic polyamine, namely, 4,4'-methylenebis-2-methyl-cyclohexanamine. This is the compound structurally represented at the bottom of the abstract. As apparent from this structure, the compound does not have an ethyleneamino (-NH-CH₂-CH₂-) moiety as required by the modified cyclic aliphatic polyamine of claim 1 of the present application.

More specifically, Kadlecek et al. disclose a reaction product obtained by addition reaction of HCHO and/or paraformaldehyde with a C4-15 polyamine containing 2-6 N atoms such as 4,4'-methylenebis-(2-methyl-cyclohexanamine). Since the reaction product of Kadlecek et al. is obtained by reaction between an amino group of the C4-15 polyamine and a carbonyl group -C(=O)-, it inevitably has a -C(-N)-O moiety, **but it can not have an ethyleneamino moiety (-NH-CH₂-CH₂- moiety).**

Similarly to the rejection based on the Brytus reference, the Examiner takes the position, in connection with the rejection based on Kadlecek et al., that since Applicants have claimed a product by way of a product-by-process claim, the Examiner did not give any patentable weight to the process step.

However, in view of the comments set forth above concerning the Kadlecek et al. reference, it is apparent that it is not merely a difference in processes, but rather, is also a difference in the structures of the products obtained from the respective processes, that distinguishes the present invention from the Kadlecek et al. reference.

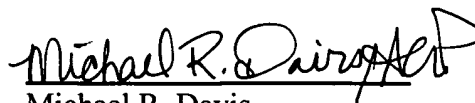
For these reasons, Applicants take the position that the rejection of claims 1-7 as being anticipated by Kadlecek et al. should be withdrawn.

Therefore, in view of the foregoing amendment and remarks, it is submitted that each of the grounds of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

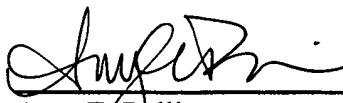
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